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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SCHULTZ, WILLIAM C

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 05/20/2004

24

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/354,640

Applicant(s)

GAN ET AL.

Examiner

William C. Schultz

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter of claim 24 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Support in the specification for the “at least first node” doing all the things in the claim and the “at least second node”, “forwarding a failure message to an upstream first node” is not found in an embodiment of the invention in a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-2,4-5,8-13,15-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Medard et al. [U.S. Pat. 6,047,331].

Regarding claims 1,8,13,18, Medard et al. discloses all the following subject matters: a network for forwarding packets from a source device to a destination device, said network including a plurality of network elements including nodes and connecting links, a master server for monitoring the network and establishing an initial route between the source device and the destination device, wherein at least one of the nodes comprises: **(col. 5 ,lines 1-20)**

a processor to compute an alternative route for the initial route; **(col. 9 ,lines 44-48; col. 10, lines 42-50)** by identifying one or more alternative-route enabled nodes, identifying downstream network elements, and generating the at least one alternative route based on the identified one or more alternative-route enabled nodes and the identified downstream network elements; **(fig. 1, parts 12a-e; col. 9, lines 44-55 & line 66 – col. 10, line 5)**

a storage space to store the initial route and the alternative route; **(col. 10, lines 20-27)**

a mechanism to detect failure in a downstream network element in the initial route; and **(col. 10, lines 30-40)**

a forwarder to automatically forward a packet to the next node on one of the at least one alternate route. **(col. 10, lines 35-40)**

Further regarding claim 8, Medard further discloses automatically forwarding packets on the alternative route without communicating with either the source or the destination. **(col. 10, lines 30-40)**

Further regarding claim 18, Medard further discloses storing, at each of the select intermediary nodes, the alternative route; **(col. 10, lines 6-18)**

Regarding claim 2, Medard et al. further discloses the network is a connection-oriented network with a plurality of established initial routes. **(col. 6, lines 35-38)**

Regarding claim 4, Medard et al. further discloses the processor computes an alternative route not including the downstream network element in the initial route. **(col. 5, lines 12-27, specifically lines 22-23)**

Regarding claim 5, Medard et al. further discloses the processor computes an alternative route not including a plurality of nodes associated with the downstream node and link as likely to fail according to network configuration data. **(col. 10, lines 30-40)**

Regarding claims 9,11,17,19, Medard et al. further discloses determining the initial route further comprises:

determining a shortest path from the destination device to the source device within the network; **(col. 5, lines 47-48)**

refining the path according to administrative constraints; and establishing the path as the initial route. **(col. 5, lines 1-27)**

Regarding claim 10,15,16, Medard et al. further discloses refining the path comprises rejecting the path exceeding bandwidth allocation **(col. 11, lines 26-52)** and hop limit. **(col. 5, lines 47-48; col. 11, line 48)**

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Regarding claim 12, Medard et al. further detecting a failure is conducted locally by a node preceding the failed element without requiring notification of a master server or an ingress node. **(col. 10, lines 30-40)**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medard et al. [U.S. Pat. 6,047,331] as applied to claim 1 above, and further in view of Hsing et al. [U.S. Pat. 6,167,025].

Regarding claims 6,21, Medard et al. discloses that the mechanism could be one of a plurality of methods including diagnostic signal not received. **(col. 10, line 33)** Medard fails to disclose the mechanism to detect failure sends communication packets to downstream nodes at regular intervals.

Hsing et al. discloses a mechanism to detect failure sends communication packets to downstream nodes at regular intervals. **(col. 13, lines 5-30)**

It would be obvious for one skilled in the art at the time of invention to modify Medard with Hsing et al. The motivation to do so is to have assured data transport which provides assurance that a link is up and running or quickly detect a failure. **(col. 4, line 66 – col. 5, line 6)**

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Medard et al. [U.S. Pat. 6,047,331] as applied to claim 1 above, and further in view of Ohno [U.S. Pat. 6,252,853].

Regarding claim 3, Medard et al. discloses the restoration method above but fails to disclose that the router is a label switched router.

Ohno discloses a network restoration method for a label switched router in a connection-oriented network (ATM). (**abstract; fig. 1; fig. 2 – fault table; col. 1, lines 21-26**)

Both perform network restoration by computing alternate routes and saving those alternate routes in a table to be looked up once a failure occurs.

It would be obvious for one skilled in the art to modify Medard et al., a network restoration method for connection-oriented networks with Ohno label switched routing with a network restoration method. The motivation to do so is as Ohno suggests in column 1 where transfer processing of datagrams require confirmation of destination and label switching does not.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Medard et al. [U.S. Pat. 6,047,331] and further in view of Ohno [U.S. Pat. 6,252,853] as applied to claim 3 above, and further in view of R. Callon et al. [draft-ietf-mpls-framework-02.txt, 11/21/1997]

Regarding claim 7, Ohno discloses that a lookup occurs on detection of a fault and that the router is a label switched router. (**col. 5, lines 42-60**)

Ohno fails to disclose the forwarder swaps a label on a packet with another value and forwards the packet to the next node.

Callon discloses that a label swap is the basic forwarding operation consisting of looking up an incoming label to determine the outgoing label, encapsulation, port, and other data handling information and that label swapping is a forwarding paradigm allowing streamlined forwarding of data by using labels to identify streams of data to be forwarded. **(pg. 6, lines 10-20)**

Ohno discloses that it keeps a table of the ports and VPI's for the alternate routes. **(fig. 2)** and Ohno discloses that the route is a label switched router. It would be obvious to use the VPI field as the label for alternate routes and perform the forwarding disclosed in the IETF doc. The motivation to do so (label swapping) is as Callon discloses on page 2, by "providing greater flexibility ... by allowing new routing services ... without a change to the forwarding paradigm". **(pg. 2, end of first paragraph of sec. 1.1)**

Allowable Subject Matter

Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 14 is allowed.

Response to Arguments

Applicant's arguments filed 6/5/2003 have been fully considered but they are not persuasive.

1) "Medard does not disclose a processor that computes an alternative route for an initial route" and "...[the] APS processor does not compute an alternative route...":

Medard discloses on col. 10, starting at lines 8-17:

Once the preferred network topologies and paths between each of the nodes 12a-12e are computed, the path information is stored in a routing table 16. Routing table 16 has stored therein a particular primary order and a particular secondary order of switching entities and links which define primary and secondary paths between the nodes 12a-12e and which are part of primary and secondary tree topology network configurations. Thus, each source node is provided having a primary path and a secondary path to every other node 12 in the network. Moreover, since the primary and secondary paths are provided as part of primary and secondary tree topologies.

Medard discloses on col. 10, starting at line 45:

Alternatively, the secondary tree path may be computed dynamically in the APS processor 14 and provided to routing table 16.

Clearly the APS is computing an alternative set of routes and does this via precomputed means or dynamically. Applicant is also directed to read columns 17 thru 21 where the procedure for selecting alternate routes is disclosed. By applicant's definition of what an "alternate-route-enabled node" is, spec page 7 line 19, Medard clearly shows the same node, which is one that has alternate routes pre-calculated and stored at the node and along the nodes of the initial route.

Medard discloses on col. 9, starting at line 45 that each node has an APS:

As an alternative to APS processor being provided as part of a network node as shown in FIG. 1,
... In response to the information provided to APS Processor 14, APS processor 14 computes pairs of tree topologies for each source-node/destination-node pair in the network

Clearly Medard discloses "alternate-route-enabled node[s]".

2) "...one skilled in the art [cannot] conclude that these nodes 12a-12e also compute an alternate route"

Applicant's claims also do not require all nodes in the network perform the claimed functions just, "... at least one of the nodes". Medard discloses the claimed network, as per the 102 rejection.

3) "All the 103 rejections are faulty because of Medard et al. failing to teach all aspects of amended claims 1,8 and 18"

Since Medard is shown to disclose the newly amended claims the 103 rejections now stand.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Schultz whose telephone number is 703-305-2367. The examiner can normally be reached on M-F(7-4)(first bi-week) M-Th(7-4)(second bi-week).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-9508 for regular communications and 703-305-9000 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

William Schultz
May 20, 2004



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